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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/768,569

01/29/2004

David Cotter

UK03-002

7052

22928 7590 02/01/2007
CORNING INCORPORATED
SP-TI-3-1
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EXAMINER

KIM, DAVID S

ART UNIT

PAPER NUMBER

2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No. 10/768,569	Applicant(s) COTTER ET AL.	
	Examiner David S. Kim	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2004 and 09 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Europe on 31 January 2003. It is noted, however, that applicant has not filed a certified copy of the European Patent Application Serial No. 03250617.2 as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 5** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, notice the following limitation:

“other light-emitting diodes of sufficient optical power and spectral bandwidth”.

This limitation is indefinite since the requisite degree of “sufficient” optical power and spectral bandwidth is indefinite. As a remedy, Examiner respectfully suggests removal of this limitation.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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6. **Claims 1-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Healey et al. (“Spectral slicing WDM-PON using wavelength-seeded reflective SOAs”, hereinafter “HealeyEL”) in view of the Healey et al. (U.S. Patent Application Publication No. US 2003/0007207 A1, hereinafter “HealeyUS”).

Regarding claim 1, HealeyEL discloses:

An optical network comprising:

a central source (EDFA in Fig. 1) providing light in a plurality of spaced wavelength bands (the broadband output of the EDFA spans any number of spaced wavelength bands);

plural distributed terminals (modulators in Fig. 1) operable to modulate and return received light in any of the said wavelength bands; and

a wavelength-routed network (right-side DWDM in Fig. 1) receiving light in all the said wavelength bands from the central source and routing each wavelength band to a respective one of the terminals.

HealeyEL does not expressly disclose:

the central source including variable-gain optical amplifiers enabling the relative intensity of light in respective wavelength bands to be varied.

However, such a source is known in the art, as shown by HealeyUS (Fig. 2). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the central source teachings of HealeyUS in the network of HealeyEL. One of ordinary skill in the art would have been motivated to do this since the central source teachings of HealeyUS provide the benefit of channel equalization and so minimize the overall signal dynamic range, which leads to a minimized effect of crosstalk (HealeyUS paragraph [0039]).

Regarding claim 2, HealeyEL in view of the HealeyUS discloses:

An optical network as claimed in claim 1 in which the variable-gain optical amplifiers are an array of semiconductor optical amplifiers (HealeyUS, SOAs in Fig. 2) and are followed by a wavelength-division

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multiplexer (HealeyUS, 17 in Fig. 2) for receiving their outputs and passing them together to the wavelength-routed network.

Regarding claim 3, HealeyEL in view of the HealeyUS discloses:

An optical network as claimed in claim 2 in which the semiconductor optical amplifiers are also preceded by a wavelength-division demultiplexer (HealeyUS, 9 in Fig. 2) receiving light from a single multi-band source (HealeyUS, 1 in Fig. 2).

Regarding claim 4, HealeyEL in view of the HealeyUS discloses:

An optical network as claimed in claim 1 in which the central source is a spectral-slicing source (HealeyUS, paragraph [0037], "spectrally slices") in which light in a continuous range of wavelengths is generated and spaced wavelength bands selected from it.

Regarding claim 5, HealeyEL in view of the HealeyUS discloses:

An optical network as claimed in claim 4 in which the light generator is selected from the group consisting of rare-earth doped fibre amplifiers, semiconductor optical amplifiers, super-continuum sources, mode-locked lasers superluminescent diodes, other light-emitting diodes of sufficient optical power and spectral bandwidth, and wavelength combs (HealeyUS, paragraph [0100]).

Regarding claim 6, HealeyEL in view of the HealeyUS discloses:

An optical network as claimed in claim 5 comprising wavelength-division multiplexers for slicing to obtain the required spaced wavebands, said multiplexers being selected from the group consisting of arrayed-waveguide gratings, thin-film filters, directional couplers, and filters of the blazed-grating type (HealeyUS, paragraph [0102]).

Regarding claim 7, HealeyEL in view of the HealeyUS discloses:

An optical network as claimed in claim 1 in which at least some terminals each comprise a reflection modulator (HealeyEL, reflective amplifier modulators in Fig. 1).

Regarding claim 8, HealeyEL in view of the HealeyUS discloses:

An optical network as claimed in claim 1 in which all the terminals are substantially identical (HealeyEL, the reflective amplifier modulators in Fig. 1 are implied to be substantially identical as no substantial difference is noted).

Regarding claim 9, HealeyEL in view of the HealeyUS discloses:

An optical network as claimed claim 1 in which the said wavelength-routed network is entirely passive (HealeyEL, p. 1181, col. 2, last paragraph, DWDM in Fig. 1 is a thin film filter, which is passive).

Regarding claim 10, claim 10 is a method claim that corresponds largely to the apparatus claim 1. Therefore, the recited means in apparatus claim 1 read on the corresponding steps in method claim 10. Claim 10 also includes limitations absent from claim 1. HealeyEL in view of the HealeyUS discloses these limitations:

adjusting the said variable optical amplifiers individually to determine the level of light reaching the respective terminals (HealeyUS, paragraph [0039]).

Regarding claims 11-12, claims 11 and 12 are claims that introduce limitations that correspond to the limitations introduced by claims 1 and 10, respectively. Therefore, the recited limitations in claims 1 and 10 read on the corresponding limitations in claims 11-12.

Conclusion

7. The references made of record and not relied upon are considered pertinent to applicant's disclosure. Han et al. is cited to show an optical network with a central source, plural distributed terminals, a wavelength-routed network, spectral slicing, and reflection modulators (e.g., Figs. 1-2). Cotter et al. is cited to show the related search report by the European Patent Office. Kim et al. is cited to show an optical network with a central source, plural distributed terminals, a wavelength-routed network, spectral slicing, and reflection modulators (e.g., Figs. 1 and 5). Zirngibl et al. is cited to show a central source with variable-gain optical amplifiers (e.g., Fig. 1).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSK


KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER